

REMARKS

Reconsideration and further examination of the application, as amended, are respectfully requested.

In the Office Action, claim 9 (and claim 11 due to its dependence on claim 9) were rejected under 35 U.S.C. §112, second paragraph. Applicants have amended claim 9 and submit that claim 9 (and thus claim 11 as well) satisfy the requirements of §112, second paragraph.

Claims 1-9 and 11 were rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,243,756 to Whitmire et al. ("Whitmire"). Claim 10 was rejected under §103 as obvious based on Whitmire in view of U.S. Patent No. 6,092,214 to Quoc et al. ("Quoc"). Applicants respectfully traverse the rejections. Among other things, the art of record fails to disclose the remote monitoring of a switch network or the use of a multiplexer configured to receive raw data signals from the network devices making up the switch network and to supply the raw data from a selective one of the network devices to a single, remote agent, such as a remote monitoring (RMON) probe.

Description of the Present Invention

The present invention is directed to a system for remotely gathering management information from a plurality of network switches in an efficient manner. The system includes a plurality of network switches organized in a stack arrangement so as to appear as a single, logical switch network. In a first embodiment, each individual switch is coupled to a multiplexer which is also coupled a single, remote monitoring (RMON) probe. The RMON probe, in turn, is connected to a management process. In operation, a first network switch gains

control over the multiplexer and utilizes the multiplexer to transmit raw data signals to the RMON probe. The RMON probe receives the raw data and converts it into a format that is usable by the management process. When the first network switch is done transmitting its raw data signals, a second switch gains control over the multiplexer and transmits its raw data signals via the multiplexer to the same RMON probe. The RMON probe converts the raw data signals from the second switch into a format usable by the management process. These steps are repeated such that each individual network switch transmits its raw data signals via the multiplexer to the RMON probe.

In a second embodiment, each individual network switch is provided with a probe port. The probe port of a first switch is coupled directly to the RMON probe without utilizing any multiplexer. The remaining switches are then connected, e.g., in series, to the first switch through their respective probe ports. Switch activity-related information is collected at each probe port. In addition, the first switch selectively, e.g., sequentially, couples each of the individual switches (including itself) one at a time to the RMON probe. The switch that is currently coupled to the RMON probe transmits its switch activity-related information in terms of raw data signals. As with the first embodiment, the raw data signals are converted by the RMON probe into a format that is usable by the management process.

In accordance with the present invention, the network switches do not have any management entities of their own. Instead, the single, remote RMON probe acts as the management entity for all of the network switches. This simplifies the design and reduces the cost of the switches. Furthermore, the single RMON probe can gather raw data signals from each of the plurality of network switches, and convert that raw data into a useful format.

Description of the Cited References

Whitmire is directed to a plurality, e.g., five, repeaters that are incorporated into a single, integrated network device. See Col. 5, lines 34-37 (“a system according to the present invention provides an internetworking system that operates with segments of different media standards and/or transmission rates in **a single integrated device**”). The five repeaters are interconnected by a common backplane of the integrated device. See Col. 6, lines 39-40 (repeaters are “physically and logically coupled together across a common backplane bus”). One of the repeaters is designated the management repeater (102), and an SNMP management agent (1302) is disposed on the management repeater (102). See Col. 8, lines 38-40 (the management agent 1302 is “within a management module within the managing repeater 102”). This SNMP management agent (1302), which is disposed within the integrated device itself, collects management information from each of the repeaters. See Col. 23, lines 7-24 (management agent 1302 gathers the statistics for each repeater and organizes the statistics into the format requested by the management platform). That is, Whitmire’s integrated device performs local (not remote) monitoring.

Quoc describes a plurality of repeaters organized in a stack. For each repeater, the stack further includes a designated network management module (NMM). One of the NMMs in the stack is selected to be the “master” NMM, while the remaining NMMs are designated as “slave” NMMs. The master NMM performs all of the management functions for the stack, i.e., local monitoring. The slave NMMs remain ready to take over the management functions should the master NMM fail.

Differences Between the Present Invention and the Cited References

Claim 1, as amended, recites in relevant part:

- “an entity **remote** from the plurality of switches **for gathering information**”, and
- “a multiplexer **separate** from the plurality of network switches for selectively connecting, according to an arbitration scheme, said plurality of network switches one at a time to said single entity”.

That is, with the present invention, a single entity for gathering raw data signals from all of the network switches within the stack is located remotely from the switches, and a multiplexer (also located remotely from the switches) is used to connect each switch to the remote entity one at a time. This significantly simplifies the design of the switches themselves by eliminating the need to include a management entity of their own.

Whitmire, on the other hand, discloses an integrated network device that has its own local management agent (element 1302). Whitmire’s management agent 1302 collects information from each of the repeaters and converts it into a format suitable for receipt by the management platform. See Col. 23, lines 7-24. Thus, Whitmire fails to disclose an entity that is remote from the repeaters and is configured to collect raw data signals in order to monitor the repeaters.

Whitmire also fails to disclose a multiplexer located remotely from its repeaters. Instead, with Whitmire, the management agent 1302, which is located on the first repeater 102, gathers information from each of the repeaters and arranges this information in the format requested by the management platform 116.

To sustain a rejection under §102, the cited reference must disclose each element of the claimed invention united in the same manner. As Whitmire fails to disclose either (1) a remote entity for gathering raw data signals or (2) a remote multiplexer for selectively connecting a plurality of network switches to the remote entity, the rejection should be withdrawn.

Claim 9, as amended, recites in relevant part:

- “a connection between the probe port of a first network switch to a remote monitoring probe”,
- “means for interconnecting the network switches through their probe ports”, and
- “means for selectively transmitting raw data signals generated by each network switch to the remote monitoring probe one at a time through the probe port of the first network switch”.

Thus, with this embodiment of the invention, the switches are provided with dedicated probe ports that are used to interconnect the switches and to connect a selected one of the switches to the remote entity. The switches can then utilize their probe ports to transmit raw data signals to the remote entity. The remote entity, in turn, monitors these raw data signals and converts them into a format that is usable by a management process to which the remote entity is coupled.

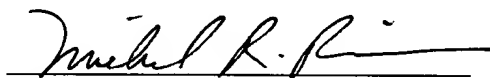
As described above, Whitmire’s integrated network device includes its own, i.e., a local, management agent (element 1302) for gathering the repeaters’ raw statistical information and for converting that information into the format requested by the management platform (element 116). None of the individual repeaters of Whitmire’s integrated device sends raw data signals to the management platform. Instead, only the management entity (element

1302), which is disposed on the management repeater (element 102), communicates with the management platform (element 116). Because Whitmire fails to disclose a system in which each of the individual repeaters communicates with a remote entity on their own, the rejection of claim 9 should be withdrawn. Claims 2-8 and 10-11 depend from allowable base claims and are thus also allowable.

Applicants submit that the application, as amended, is in condition for allowance and early favorable action is requested.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,



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**MARK-UP PAGES FOR THE DECEMBER 6, 2002, AMENDMENT TO
U.S. PATENT APPLICATION SER. NO. 09/263,362**

The replacement for claims 1, 7, 9 and 11 resulted from the following changes.

1. (Amended) A system for use in gathering information for use in managing a network, [said network including a plurality of network switches configured in a stack configuration,] said system comprising:

a plurality of network switches logically organized in a stack configuration so as to operate as a single logical switch;

an entity remote from the plurality of switches for gathering said information;

a multiplexer separate from the plurality of network switches for selectively connecting, according to an arbitration scheme, said plurality of network switches one at a time to [a] said single entity [for gathering said information from said switches], wherein

each [of said] switch[es] is [being] connected to said multiplexer by a separate [respective] connection, and transmits raw data signals that are converted by the remote entity into network management information.

7. (Amended) A system according to claim 1, wherein said raw data signals [information] comprise[s] switch port activity information, and said switches are configured to permit user selection of particular switch port activity information to be supplied to the remote entity via the multiplexer.

9. (Amended) A system for use in gathering [information that may be useful to] network management information, said system comprising:

a plurality of network switches configured in a stacked configuration, each [respective] switch having a plurality of ports including a probe [respective] port for receiving switch activity-related information from other ports of the respective switch,

a connection between the probe port of a first network switch to a remote monitoring probe;

means for interconnecting the network switches through their probe ports; and

means for selectively transmitting the switch activity-related information received at the probe ports in the form of raw data signals to the remote monitoring probe one network switch at a time through the probe port of the first network switch [the switches providing respective switch activity-related information to a single remote monitoring probe, one respective port of one of said switches being connected to another respective port of another of said switches, and said another respective port being connected to said single remote monitoring probe, the respective activity-related information of said one switch being provided to said single remote monitoring probe via a connection dedicated solely to transmission of said respective activity-related information].

10. (Amended) A system according to claim 9, wherein said switches are configured to implement an arbitration scheme for determining the order in which the [respective] activity-related information of each [respective] switch[es] is provided to said probe.

11. (Amended) A system according to claim 9, wherein said probe ports [a third respective port of a third switch is connected to said one first respective port via another connection, said another connection] being solely for transmission of said [respective] activity-related information [of said third switch to said one switch].